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Sent via email

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**Subject: Canada Gazette, Part I, Volume 154, Number 51: Clean Fuel Regulations, December 19, 2020**

Dear Ms. Mellow:

This submission presents the views of the Railway Association of Canada (RAC), on behalf of its members, concerning the proposed *Clean Fuel Regulations* (the Regulation) as published in *Canada Gazette*, Part I, on December 19, 2020.

The RAC and its members support the federal government's commitment to decarbonization. Railways in Canada are committed to being key partners in the transition towards a low-carbon economy, and are actively working with the federal government to chart a course towards deep decarbonization of the sector. As written, however, the Regulation limits the role of the rail sector in contributing meaningfully towards Canada's net zero targets. This submission outlines how the proposed Regulation could be amended to ensure a more robust role for rail in furthering a transition to lower carbon fuels, and in so doing advance progress towards the overall targets.

The RAC's recommendations are summarized here for the consideration of Environment and Climate Change Canada (ECCC). It is our belief that these amendments would ensure that the proposed Regulations support the rail sector in contributing to the transition to a low carbon economy.

1. That ECCC reintroduce an energy efficiency ratio (EER) for rail to the Regulation, allowing railroads to generate end-used fuel switching credits under Compliance Category 3.
2. That ECCC broaden the definition of transportation end-use fuel switching under Compliance Category 3 to include yard equipment.
3. The RAC asks that ECCC protect Canadian railway companies' commercial agreements with OEMs – and improve ongoing investment certainty – by requiring vendor disclosure of energy density and percent of renewable content whenever a batch of fuel contains more than 5% biodiesel or 30% renewable diesel.
4. That ECCC earmark a portion of the compliance fund to support rail specific technology research, development, and deployment.

## Background on Canada's Railway Sector



The Railway Association of Canada (RAC) represents freight and passenger railway companies that move more than 100 million people and \$320 billion worth of goods in Canada each year. Rail services are provided over a network that runs from coast to coast, spanning nearly 43,000 km of track infrastructure. Both the tracks and the land upon which they are built are owned and maintained by private railway companies, which operate 24/7 and 365 days a year to meet customer demand.

Passenger rail is not only a safe and low-carbon mode for daily commutes and intercity travel; but also provides economic and environmental benefits by reducing on-road vehicle traffic. This reduces emissions, road congestion, and wear and tear on publicly funded roads and highways.

Freight rail is on average three to four times more fuel efficient than trucking, making it among the lowest emitting modes of freight transportation<sup>1</sup>. Canadian freight railways literally move the economy: transporting about 50 percent of the country's goods destined for export (by volume) and 70 percent of intercity freight traffic. Despite being the most prevalent method of transporting freight (on a tonne-km basis), the rail sector accounts for only 4% of Canada's total transportation-related greenhouse gas (GHG) emissions.<sup>2</sup> This is a testament to the fuel efficiency of this mode.

For over twenty-five years, Canada's railways have worked with the federal government to reduce emissions produced by locomotives. Since 1995, Transport Canada (TC) and the RAC have signed four Memoranda of Understanding (MOU) to establish voluntary reduction targets for emissions produced by locomotives in Canada. Performance under the MOU agreements has been positive, with railways demonstrating that investments in technology and more efficient operating practices are improving fuel economy and reducing emissions. In fact, by consistently investing in efficiency and sustainability, Canada's freight railways have reduced their GHG emissions intensity by over 40%, and intercity passenger railways have reduced their GHG emissions intensity by more than 35%.<sup>3</sup>

The most recent MOU, signed in 2018, includes a commitment to collaborate on a comprehensive pathway to reduce emissions produced by the railway sector (Rail Pathway Initiative). This Rail Pathways Development project, underway now, will align government and industry efforts to

<sup>1</sup> <https://www.aar.org/wp-content/uploads/2020/06/AAR-Sustainability-Fact-Sheet.pdf>

<sup>2</sup> Transport Canada, 2017

<sup>3</sup> Baseline year: 1990

support the development, testing and commercialization of next generation technologies that will allow for deep reductions of emissions from the rail sector.

### Reintroduction of an EER for Rail

While railways may have some opportunities to generate credits under Compliance Category 2 for importing low-carbon fuels, the RAC and its members have significant concerns over the unexpected change in position since the 2019 Clean Fuel Standard: proposed regulatory approach. The proposed regulatory approach outlined an important credit generation opportunity via rail end-use transportation fuel switching in Compliance Category 3 and included energy efficiency ratios (EER) for rail aligning with best practices in other jurisdictions. The RAC urges ECCC to reintroduce the EER for rail and the reference to rail for end-use fuel switching prior to the next publication of the CFR in CG2. This would send important market signals from the onset of the CFR and allow rail to meaningfully contribute to emission reduction in the transportation sector.

The rationale for excluding these elements that was provided by ECCC at the June 2020 stakeholder meetings was that there would be “no credit creation from rail vehicles as many existing and future light rail systems are already electric by default”. This rationale is not applicable or relevant to the freight rail sector as it currently operates largely on diesel. However, given adequate support and opportunities, there is significant potential and interest in switching to renewable fuels. Excluding rail as a compliance option in Compliance Category 3 places Canadian railways and shippers at a competitive disadvantage both in comparison to other transportation options and as the North American rail sector is integrated. This exclusion also risks limiting future opportunities for rail.

The RAC firmly believes that encouraging a modal shift to rail would lead to immediate GHG reductions in the transportation sector based on the increased efficiency of rail over trucking for the movement of freight. As currently drafted, the CFR may create a policy environment where it is more economical for shippers to turn to trucking over rail, resulting in a net increase of GHG emissions in the transportation sector. This outcome would run counter to the stated objectives of the CFR.

There are other jurisdictions with clean fuel regulatory frameworks that take a more inclusive approach in their treatment of rail. These jurisdictions include the European Union, California, and Oregon where fuel switching in rail is eligible for credit generation. In the California Low Carbon Fuel Standard for example, eligible entities that provide electricity or hydrogen as a transportation fuel may generate credits or designate a third-party entity on its behalf to generate credits. More specifically, in the regulations under *95483 section (c) for electricity used as a transportation fuel*, the California Low Carbon Fuel Standard includes light rail and heavy rail.<sup>4</sup> Similarly, the Oregon Clean Fuels Program allows credit generation opportunities for electrification of heavy rail.<sup>5</sup> Rather than excluding rail, these jurisdictions have structured their low carbon fuel standards in such a way that could incentivize end-use fuel switching in rail thereby resulting in reduction of GHG emissions. It is crucial that ECCC allow credit generation opportunities for rail to spur innovation and send a market signal for continued investment.

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<sup>4</sup> [https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/lcfs\\_meetings/03082016regguidance\\_16-06.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/lcfs_meetings/03082016regguidance_16-06.pdf)

<sup>5</sup> <http://records.sos.state.or.us/ORSOSWebDrawer/Recordpdf/7604338>

**Recommendation 1:** The RAC recommends that ECCC reintroduce the EER for rail and the reference to rail for end use fuel switching prior to the next publication of the CFR.

### **Inclusion of Yard Equipment**

At a minimum, the RAC asks that as ECCC clarifies the specific types of vehicles eligible for credit creation as of the registration of the final Regulations and publishes vehicle classes and their associated EERs in the Fuel LCA Model Methodology document that they broaden the definition of transportation vehicle end-use fuel switching to include yard equipment. Intermodal equipment used to shift railcars in yards and to load and unload containers is essential to the movement of goods within the transportation sector.

Both California and Oregon include various credit generation opportunities for the electrification of yard equipment. In California for example, their LCFS includes Electric Cargo Handling Equipment for rail yards and also specifies electrification of yard trucks for credit generation under their definition of Electricity/BEV and PHEV Trucks.<sup>6</sup> In the European Union, the Fuel Quality Directive is more flexible in its approach by using broad terminology such as “non-road mobile machinery” which supplementary documents outline, contains everything from construction and farming machinery, to railcars, locomotives, and inland water vessels.<sup>7</sup>

Due to its localized operating area and reduced energy intensity requirements, yard equipment is widely seen as a possible “first step” to electrification of rail – allowing smaller scale testing of catenary, battery, or hydrogen fuel cells. Furthermore, it is often the least efficient, oldest locomotives that are used in the yards, so potential for credit generation for electrification of these provides the opportunity to make a significant impact.

Allowing credit generation based on conversion of yard equipment like shunters to electricity or hydrogen fuel cell technologies would hasten the development and testing of this important interim step in rail decarbonization.

As illustrated above, the RAC believes that Compliance Category 3 should be expanded to include locomotives, but at a minimum, should at least include yard equipment, essential in the transportation sector. The inclusion of yard equipment would provide additional opportunities to incent rail’s transition to lower carbon fuels.

**Recommendation 2:** The RAC recommends that ECCC include yard equipment for credit generation under Compliance Category 3.

### **Vendor Disclosure of Fuel Blending Rates**

Locomotives represent significant capital investments for Canada’s railway companies, costing several million dollars each and expected to last upwards of forty years. Based on operational

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<sup>6</sup> See [https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/guidance/faq\\_eche\\_eligibility.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/guidance/faq_eche_eligibility.pdf) for more information

<sup>7</sup> See [https://ec.europa.eu/growth/sectors/automotive/environment-protection/non-road-mobile-machinery\\_en](https://ec.europa.eu/growth/sectors/automotive/environment-protection/non-road-mobile-machinery_en)

concerns, most original engine manufacturer (OEM) warrantees currently limit the blending of biodiesel to 5% and renewable diesel to 30%. Use of blends higher than these limits risks causing negative operational impacts, damaging engines, and voiding warranties.

Given that the liquid fuel regulations will reduce the Canadian average carbon intensity (CI) value for diesel from 93.6 g CO<sub>2</sub>/MJ in 2022 to 84 gCO<sub>2</sub>/MJ by 2030, average biofuel blend rates are expected to rise. This raises the possibility that they could exceed the blending limits imposed by OEM warrantees. OEMs have signaled that they are aware of and are working to mitigate this issue. Research is underway, including testing in conjunction with railroads, to identify technical, maintenance and operational changes that could be implemented to reduce the negative impacts incurred using higher biofuel blends. It is hoped that the warranted blend limits will increase as solutions are identified, but as of yet neither new safe blending limits, nor timelines for ascertaining these have been identified.

Operational impacts of renewable fuel content must also be considered. Renewables fuels typically have lower energy content than current Ultra Low Sulfur Diesel (ULSD). As fuel suppliers increase the renewable fuels blended with ULSD, rail operations could experience issues with maintaining adequate range between fueling locations. Mitigating this risk may require additional fueling infrastructure, locomotive modifications, and possibly result in the increase of fuel consumption to maintain normal rail network operations. Primary fuel suppliers will need to assure clarity in fuel content, energy density, and quality to assure reliable rail operations under the proposed Regulations.

Higher blends of fuel could help the rail sector to reduce emissions if they can be used safely, something that is welcomed by the industry. Our members must always strive to purchase and use fuel that conforms to the limits established by OEMs at all times. However, under the draft liquid fuel regulations, fuel vendors are not required to disclose the percentage of biodiesel or renewable diesel in their products. Our members are concerned that the lack of transparency with regards to blend percentages will potentially void hundreds of previously negotiated warranties and expose them to millions of dollars in unforeseeable liabilities.

**Recommendation 3:** The RAC asks that ECCC protect Canadian railway companies' commercial agreements with OEMs – and improve ongoing investment certainty – by requiring vendor disclosure of energy density and percent of renewable content whenever a batch of fuel contains more than 5% biodiesel or 30% renewable diesel. At a minimum, primary suppliers should be compelled to provide this in a timely manner upon formal request.

## Compliance Fund

The RAC believes that the compliance fund associated with the *Clean Fuel Regulations* presents an opportunity to support technology research, development, and demonstration efforts that will advance the transportation sector's transition to a low-carbon economy. Particularly in the rail sector, alternative technologies such as non-combustion propulsion (e.g., hydrogen fuel cells and battery electric locomotives) still require additional research, development, and demonstrations before achieving commercial viability in Canada. Government support for such initiatives would help to spur innovation and private investments into these technologies.

**Recommendation 4:** the RAC recommends that a portion of the compliance fund be earmarked towards supporting rail specific technology research, development, and deployment.



## Summary

Rail is already an extremely efficient transportation modality for moving both people and freight. Notwithstanding this fact, the rail sector is actively seeking opportunities for deeper decarbonization. This is challenging, however. Rail is a capital-intensive sector, and locomotives are long-term assets. There are significant economic barriers to large scale fleet replacement: each locomotive represents an investment of several million dollars and is expected to last for upwards of forty years. Where refueling infrastructure is also required, the costs become significantly higher, given the long distances that locomotives may travel. The rail sector must be able to generate end-use fuel switching credits under the *Clean Fuel Regulations* to offset some of these costs if they are to meet their decarbonization goals.

Zero-emission technology for locomotives is still nascent and will require additional testing and demonstration prior to commercialization. Allowing railroads to generate credits for end-use fuel switching in yard equipment would provide the opportunity for the sector to offset some of the costs which they will incur in supporting testing and demonstration scale projects.

Further, allowing for credit generation for end-use fuel switching in mainline rail would ensure that developing technologies that prove successful in the less intensive operations in rail yards continue to be scaled up for wider scale use in mainline rail applications. This would also serve to prevent unintentional distortions of transportation markets in Canada. As written, the *Clean Fuel Regulations* risks shifting both passengers and freight away from more efficient modes such as rail and back into cars and trucks.

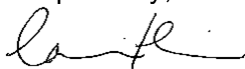
Ensuring that blend rates are disclosed on a transactional basis for batches of fuel containing higher amounts of biodiesel or renewable diesel than allowed under OEM warranties would ensure that railroads were supported in maximizing their use of low carbon fuels while maintaining engine warranties. This will represent an important interim step to decarbonization of the rail sector.

Finally, ensuring that a portion of the compliance fund is used to support rail specific technology development will help to advance the commercial viability of rail specific technologies. Research and pilot demonstrations are still required for rail technology therefore supporting these initiatives with government funding will help to spur innovation and more private investment.

In closing, the RAC and our members support ECCC's efforts to reduce the carbon intensity of fuels used in the Canadian transportation sector. As significant transportation fuel consumers, Canadian railways hope to continue to play a key role in decarbonizing the transportation sector through generation of end-use fuel switching credits.

We appreciate the opportunity to participate in this consultation process and we thank you for taking the time to review our submission.

Respectfully,



**Caroline Healey**

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